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APPLICATION FOR LETTERS PATENT

**Context-Sensitive Help for a Web-Based User Interface**

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## TECHNICAL FIELD

The described subject matter pertains to context sensitive help.

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## BACKGROUND

A substantially important element of a user-friendly computer program application is readily available “help” information. Most computer programs provide some form of help information such as a help menu item in a main user interface (UI) window and/or context-sensitive help. Responsive to a user selecting a help menu item, an operating system (OS) typically sends a computer program a particular message indicating to the computer program that the user selected the menu item, causing at least one help window to be displayed. The displayed help window includes help information such as a list of help topics, an index, an introduction to the computer program, and/or the like.

To locate information corresponding to a user’s help request (e.g., information to resolve a question, solve a perceived problem, etc.), the user must typically scroll through displayed help topics or an index, perform a keyword search, type in a natural language question, and/or the like. By doing this, the user leaves the context of the computer program within which the user is working to locate the help information in the displayed help window. After the user has read the displayed help, the user typically closes the help window to return to the computer program application within which the user was previously working.

A goal of context-sensitive help is to provide a user with help information without requiring the user to leave the context of the computer program within which the user is working. Responsive to a user action such as a right-button mouse click over a displayed UI object, context-sensitive help typically provides

1 immediate context-sensitive information about the object without requiring the  
2 user to perform additional actions such as performing a keyword search in a  
3 separate window to locate desired information as described above. (Such UI  
4 objects can be any type of object such as a label, a control such as a button or a  
5 scroll bar in a property sheet or a dialog box, a window, and the like). The  
6 provided context-sensitive help generally answers context-sensitive questions with  
7 respect to the object of interest such as “What is this object?”, or “Why would I  
8 use this object?”

9         Conventional context-sensitive help implementations are limited in that a  
10 computer program that displays one or more UI objects, can not typically display  
11 context-sensitive help corresponding to the displayed objects unless the program  
12 was designed in advance to display context-sensitive help. This generally means  
13 that a software developer must have already mapped a respective unique ID to  
14 each UI object for which the program desires to provide such help. These unique  
15 IDs in turn must have already been mapped to one or more corresponding help  
16 files that include corresponding context-sensitive help information for the UI  
17 objects. Thus, a computer program generally cannot provide context-sensitive help  
18 for a UI that the program knows nothing about, regardless of whether the UI is  
19 being displayed, or rendered by the computer program.

20         To illustrate this, consider that a network-based product such as a server  
21 appliance communicates its Web-based UI (e.g., a number of HTML files that  
22 describe one or more Web pages) over a network for subsequent display by a  
23 different computer. In this example, the server appliance’s UI allows a user to  
24 manage data storage devices such as respective disk drives and/or logical storage  
25 volumes. Responsive to receiving the server appliance’s UI, a Web browser such

1 as Microsoft Internet Explorer ® that is executing on the different computer  
2 displays the communicated server appliance's Web page. In this example, the  
3 server appliance and the browser that is displaying the appliance's Web-based UI  
4 are executing on separate computers.

5 Unfortunately, unless the browser that is displaying the UI was pre-  
6 programmed to display context-sensitive help corresponding to specifics of the  
7 server appliance's Web-based UI, context-sensitive help is not generally available  
8 to a user viewing such a UI. This is because the browser rendering the Web-based  
9 UI does not know about the context of the server appliance's UI. The browser  
10 only knows about its own UI.

11 In this example, if a user that is viewing the server's UI does not know the  
12 difference between managing disks and volumes, the user will not generally be  
13 able to obtain any context-sensitive help to describe the difference. Instead, if the  
14 user selects a help menu item or help button displayed in the browser's UI, the  
15 user will be presented with help information that corresponds to the browser .

16 The following subject matter addresses these and other problems of  
17 traditional help implementations, which do not provide for the display of Web  
18 based-UI context-sensitive help.

## 19 20 **SUMMARY**

21 The described subject matter provides context-sensitive help for a Web-  
22 based UI. A first and a second computer are operatively coupled to one-another  
23 over a network such as the Internet, an organizational intranet, or the like. The first  
24 computer communicates a Web-based UI to the second computer. The  
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1 communicated Web-based UI includes a first Web page corresponding to a number  
2 of predetermined functions of the first computer.

3 Responsive to receiving a request for help corresponding to the first Web  
4 page, the first computer determines or identifies the first Web page's context  
5 sensitive information. The first computer generates a second Web page that  
6 includes the identified context-sensitive information, and communicates the  
7 second Web page to the second computer for display. In this manner, the first  
8 computer provides context-sensitive help for its remotely displayed Web-based  
9 UI.

### 10 **BRIEF DESCRIPTION OF THE DRAWINGS**

11  
12 Fig. 1 is a block diagram that shows an exemplary computing environment  
13 to provide context sensitive help for a Web-based UI.

14 Fig. 2 is a block diagram that shows an exemplary rendered Web page of a  
15 server appliance's Web-based UI. The rendered Web page provides a user of the  
16 server appliance with context-sensitive help corresponding to the appliance's Web-  
17 based UI.

18 Fig. 3 is a block diagram that shows a user interface of a Web browser that  
19 is executing on a different computer than a server appliance, wherein the Web  
20 browser renders an exemplary Web page of the server appliance's Web-based UI.  
21 The rendered Web page provides a user of the server appliance with context-  
22 sensitive help corresponding to the appliance's Web-based UI.

23 Fig. 4 is a block diagram that shows exemplary program modules and  
24 program data in a system to provide context-sensitive help for a server appliance's  
25 Web-based UI.

1 Fig. 5 is a flowchart diagram that shows an exemplary procedure to provide  
2 context-sensitive help for a Web-based UI.

#### 3 4 **DETAILED DESCRIPTION**

5 The following description sets forth a various implementations of the  
6 subject matter to provide context sensitive help for a Web-based user interface that  
7 incorporates elements recited in the appended claims. The various  
8 implementations are described with specificity to meet statutory requirements.  
9 However, the description itself is not intended to limit the scope of this patent.  
10 Rather, the inventors have contemplated that the claimed subject matter might also  
11 be embodied in other ways, to include different elements or combinations of  
12 elements similar to the ones described in this document, in conjunction with other  
13 present or future technologies.

#### 14 15 **Exemplary Operating Environment**

16 Fig. 1 illustrates an example of a suitable operating environment 120 in  
17 which an exemplary context sensitive help system for a Web-based UI may be  
18 implemented. Specifically, the context sensitive help system for a Web-based UI  
19 described herein is implemented (wholly or in part) by any program module 160-  
20 162 and/or operating system 158 in Fig. 1 or a portion thereof.

21 The operating environment 120 is only an example of a suitable operating  
22 environment and is not intended to suggest any limitation as to the scope or use of  
23 functionality of the exemplary context sensitive help system for a Web-based  
24 UI(s) described herein. Other well known computing systems, environments,  
25 and/or configurations that may be suitable for use with an exemplary context

1 sensitive help system for a Web-based UI include, but are not limited to, server  
2 appliances, personal computers (PCs), server computers, hand-held or laptop  
3 devices, multiprocessor systems, microprocessor-based systems, programmable  
4 consumer electronics, wireless phones and equipment, general-purpose and  
5 special-purpose appliances, application-specific integrated circuits (ASICs),  
6 network PCs, minicomputers, mainframe computers, distributed computing  
7 environments that include any of the above systems or devices, and the like.

8 A context sensitive help system 120 for a Web-based UI may be described  
9 in the general context of computer-executable instructions, such as program  
10 modules, being executed by a computer. Generally, program modules include  
11 routines, programs, objects, components, data structures, etc. that perform  
12 particular tasks or implement particular abstract data types. An exemplary context  
13 sensitive help system for a Web-based UI may also be practiced in distributed  
14 computing environments where tasks are performed by remote processing devices  
15 that are linked through a communications network. In a distributed computing  
16 environment, program modules may be located in both local and remote computer  
17 storage media including memory storage devices.

18 As shown in Fig. 1, the computing environment 120 includes a general-  
19 purpose computing device in the form of a computer 130. In one implementation,  
20 the computing device 130 is a server appliance. A server appliance is a server  
21 does not require, for example, a monitor, a mouse or keyboard, and/or other  
22 interface peripherals. The server appliance may have one or more sets of well-  
23 defined functions such as a file server, an e-mail server, a data storage device, etc.  
24 The server appliance provides context-sensitive help for the appliance's Web-  
25 based UI.

1 The components of computer 130 may include, by are not limited to, one or  
2 more processors or processing units 132, a system memory 134, and a bus 136 that  
3 couples various system components including the system memory 134 to the  
4 processor 132. Bus 136 represents one or more of any of several types of bus  
5 structures, including a memory bus or memory controller, a peripheral bus, an  
6 accelerated graphics port, and a processor or local bus using any of a variety of  
7 bus architectures. Such architectures include, for example, Industry Standard  
8 Architecture (ISA) bus, Micro Channel Architecture (MCA) bus, Enhanced ISA  
9 (EISA) bus, Video Electronics Standards Association (VESA) local bus, and  
10 Peripheral Component Interconnects (PCI) bus also known as Mezzanine bus.

11 Computer 130 typically includes a variety of computer readable media.  
12 Such media may be any available media that is accessible by computer 130, and it  
13 includes both volatile and non-volatile media, removable and non-removable  
14 media. For example, the system memory 134 includes computer readable media in  
15 the form of volatile memory, such as random access memory (RAM) 140, and/or  
16 non-volatile memory, such as read only memory (ROM) 138. A basic  
17 input/output system (BIOS) 142, containing the basic routines that help to transfer  
18 information between elements within computer 130, such as during start-up, is  
19 stored in ROM 138. RAM 140 typically contains data and/or program modules  
20 that are immediately accessible to and/or presently be operated on by processor  
21 132.

22 Computer 130 may further include other removable/non-removable,  
23 volatile/non-volatile computer storage media. By way of example only, Fig. 1  
24 illustrates a hard disk drive 144 for reading from and writing to a non-removable,  
25 non-volatile magnetic media (not shown and typically called a "hard drive"), a



1 magnetic disk drive 146 for reading from and writing to a removable, non-volatile  
2 magnetic disk 148 (e.g., a “floppy disk”), and an optical disk drive 150 for reading  
3 from or writing to a removable, non-volatile optical disk 152 such as a CD-ROM,  
4 DVD-ROM or other optical media. The hard disk drive 144, magnetic disk drive  
5 146, and optical disk drive 150 are each connected to bus 136 by one or more  
6 interfaces 154.

7 The drives and their associated computer-readable media provide  
8 nonvolatile storage of computer readable instructions, data structures, program  
9 modules, and other data for computer 130. Although the exemplary environment  
10 described herein employs a hard disk, a removable magnetic disk 148 and a  
11 removable optical disk 152, it should be appreciated by those skilled in the art that  
12 other types of computer readable media which can store data that is accessible by a  
13 computer, such as magnetic cassettes, flash memory cards, digital video disks,  
14 random access memories (RAMs), read only memories (ROM), and the like, may  
15 also be used in the exemplary operating environment.

16 A number of program modules may be stored on the hard disk, magnetic  
17 disk 148, optical disk 152, ROM 138, or RAM 140, including, by way of example,  
18 and not limitation, an operating system 158, one or more application programs  
19 160, other program modules 162, and program data 164.

20 Each of such operating system 158, one or more application programs 160,  
21 other program modules 162, and program data 164 (or some combination thereof)  
22 may include an implementation of an exemplary context sensitive help system for  
23 a Web-based UI. More specifically, each may include an implementation of an  
24 embedded Web server program module for communicating a Web-based UI to  
25 another device over a network 186, one or more computer programs for

1 dynamically generating a context-sensitive help for the communicated Web-based  
2 UI, a set of help files, and a table that maps unique context IDs that correspond to  
3 the Web-based UI to respective ones of the help files. (See, the application  
4 program modules 410 through 414 and the program data 416 through 420 of  
5 Fig. 4).

6 A user may enter commands and information into computer 130 through  
7 optional input devices such as keyboard 166 and pointing device 168 (such as a  
8 “mouse”). Other optional input devices (not shown) may include a microphone,  
9 joystick, game pad, satellite dish, serial port, scanner, or the like. These and other  
10 optional input devices are connected to the processing unit 132 through a user  
11 input interface 170 that is coupled to bus 136, but may be connected by other  
12 interface and bus structures, such as a parallel port, game port, or a universal serial  
13 bus (USB).

14 An optional monitor 172 or other type of display device may also be  
15 connected to bus 136 via an interface, such as a video adapter 174. In addition to  
16 the monitor, personal computers typically include other peripheral output devices  
17 (not shown), such as speakers and printers, which may be connected through  
18 output peripheral interface 175.

19 Computer 130 operates in a networked environment using logical  
20 connections to one or more remote computers, such as a remote computer 182.  
21 Remote computer 182 may include many or all of the elements and features  
22 described herein relative to computer 130. Logical connections include, for  
23 example, a local area network (LAN) 177 and a general wide area network  
24 (WAN) 179. Such networking environments are commonplace in offices,  
25 enterprise-wide computer networks, intranets, and the Internet.

1 When used in a LAN networking environment, the computer 130 is  
2 connected to LAN 177 via network interface or adapter 186. When used in a  
3 WAN networking environment, the computer typically includes a modem 178 or  
4 other means for establishing communications over the WAN 179. The  
5 modem 178, which may be internal or external, may be connected to the system  
6 bus 136 via the user input interface 170 or other appropriate mechanism.

7 Depicted in Fig. 1, is a specific implementation of a WAN via the Internet.  
8 Computer 130 typically includes a modem 178 or other means for establishing  
9 communications over the Internet 180. Modem 178, which may be internal or  
10 external, is connected to bus 136 via interface 170. The network connections  
11 shown and described are exemplary and other means of establishing a  
12 communications link between the computers may be used.

13 In a networked environment, program modules depicted relative to the  
14 personal computer 130, or portions thereof, may be stored in a remote memory  
15 storage device. By way of example, and not limitation, Fig. 1 illustrates remote  
16 application programs 189 as residing on a memory device of remote  
17 computer 182.

### 18 **Computer-Executable Instructions**

19  
20 An implementation of an exemplary context sensitive help system for a  
21 Web-based UI may be described in the general context of computer-executable  
22 instructions, such as program modules, executed by one or more computers or  
23 other devices. Generally, program modules include routines, programs, objects,  
24 components, data structures, etc. that perform particular tasks or implement  
25

1 particular abstract data types. Typically, the functionality of the program modules  
2 may be combined or distributed as desired in various embodiments.

### 3 4 **Computer Readable Media**

5 An implementation of an exemplary context sensitive help system for a  
6 Web-based UI may be stored on or transmitted across some form of computer  
7 readable media. Computer readable media can be any available media that can be  
8 accessed by a computer. By way of example, and not limitation, computer  
9 readable media may include “computer storage media” and “communications  
10 media.”

11 “Computer storage media” include volatile and non-volatile, removable and  
12 non-removable media implemented in any method or technology for storage of  
13 information such as computer readable instructions, data structures, program  
14 modules, or other data. Computer storage media includes, but is not limited to,  
15 RAM, ROM, EEPROM, flash memory or other memory technology, CD-ROM,  
16 digital versatile disks (DVD) or other optical storage, magnetic cassettes, magnetic  
17 tape, magnetic disk storage or other magnetic storage devices, or any other  
18 medium which can be used to store the desired information and which can be  
19 accessed by a computer.

20 “Communication media” typically embodies computer readable  
21 instructions, data structures, program modules, or other data in a modulated data  
22 signal, such as carrier wave or other transport mechanism. Communication media  
23 also includes any information delivery media.

24 The term “modulated data signal” means a signal that has one or more of its  
25 characteristics set or changed in such a manner as to encode information in the

1 signal. By way of example, and not limitation, communication media includes  
2 wired media such as a wired network or direct-wired connection, and wireless  
3 media such as acoustic, RF, infrared, and other wireless media. Combinations of  
4 any of the above are also included within the scope of computer readable media.

### 5 6 **Exemplary Server Appliance Web-Based UI**

7 Fig. 2 is a block diagram that shows an exemplary server appliance's Web-  
8 based UI 200 to provide a user that is viewing the Web-based UI on a device other  
9 than the server appliance with context-sensitive help corresponding to the Web-  
10 based UI. Web page 200 may be only a portion of the Web-based UI. In other  
11 words, the Web-based UI may include any number of Web pages for presentation  
12 on a different computer than the server appliance computer. A user of the  
13 different computer interacts with the Web-based UI to remotely manage the server  
14 appliance, review information corresponding to the server appliance, and/or the  
15 like.

16 The types/functions of various server appliance implementations are  
17 virtually unlimited. Thus, depending on the function of a particular server  
18 appliance, the information and/or function provided by an appliance's Web-based  
19 UI will vary accordingly. However, for purposes of this example, the Web  
20 page 200 illustrates information and function of a server appliance that is used for  
21 managing a data storage device. The Web-based UI's Web page 200 provides a  
22 user with context-sensitive help corresponding to the Web page.

23 The Web page 200 includes a menu bar 202, menu items 204 and 205, a  
24 persistent help object 206, and a working area 208. The menu items provide a  
25 user with direct access to information and/or functionality that corresponds to a

1 data storage device server appliance. Such menu items include hypertext links to  
2 direct a user to a particular Web page of the Web-based UI or function of the  
3 appliance with only a click of the mouse on either an image or word. Thus, the  
4 server appliance's framework determines both the look-and-feel of the Web page,  
5 as well as the appliance's response to user selection of a particular menu item.

6 Working area 208 presents information and functionality that corresponds  
7 to the server appliance. In this example, both because the server appliance is a  
8 data storage device and because the "Disks and Volumes" menu item 204-3 is  
9 selected (also note the presence of sub-menu items 205), the working area includes  
10 information corresponding to "Disks and Volumes". This is further illustrated by  
11 the "Disks and Volumes" label 210 and various links 212. In this implementation  
12 the links are hypertext links that responsive to user selection request the appliance  
13 to: (a) present a different Web page of its remote UI; (b) perform a particular  
14 function; (c) and/or the like.

15 The persistent help object 206 provides access to context-sensitive help that  
16 is associated with the Web page 200. The help object can be any object such as a  
17 hypertext link, a bitmap image of question mark representation (as illustrated in  
18 this example), and the like. In this implementation, the persistent help object is  
19 displayed in the menu bar 202. However, the help object can be displayed  
20 anywhere in the Web page. The persistent object 206 is mapped to a Universal  
21 Resource Locator (URL) that identifies the network address of the server  
22 appliance that communicated the Web page 200 for display.

23 The URL behind the help object 206 further specifies a number of  
24 additional parameters such as the displayed Web page's 200 unique ID. Each  
25 Web page 200 of a server appliance's Web-based UI comprises a unique ID—

1 meaning that a Web page's ID is unique with respect to all other Web page IDs  
2 within the appliance's UI framework. A Web page's unique ID is used to identify  
3 the Web page's corresponding context-sensitive help . (Systems, procedures, and  
4 data structures that use a unique ID to identify associated context sensitive help  
5 are discussed in greater detail below in reference to Figs. 4 and 5.

6 A Web-based UI 200 can have many different features other than those  
7 described with respect to Fig. 2. For example, a different Web page 200 may  
8 include an audio presentation of a Web-based UI, wherein a user can select  
9 context-sensitive help corresponding to the Web page with an utterance that is  
10 recognizable by voice recognition software. Moreover, the different Web page  
11 may comprise one or more of a combination of aspects such as the menu bar 202,  
12 the work area 208, and/or the like.

13 Fig. 3 is a block diagram that shows a Web browser 300 that is executing  
14 on a different computer than a server appliance. The Web browser has received  
15 the server appliance's Web-based UI such as the Web-based UI/Web page 200 of  
16 Fig. 2, and renders it. The rendered remote UI provides a user of the server  
17 appliance with context-sensitive help for the appliance's Web-based UI.

18 The browser 300 includes a title bar 302, a button bar 304, an address bar  
19 308, a display region for rendering a Web page 200 of a server appliance's Web-  
20 based UI 200, and a status bar 310. The Web browser UI is typically customizable  
21 by a user to present one of a number of possible UIs portions. Thus, a Web  
22 browser may have more or less features than the features 302 through 310, as long  
23 as the Web browser can present a Web page such as the server appliance's Web-  
24 based UI.

1 The title bar 302 includes menu items such as a help menu item. (Individual  
2 menu items are not shown). The button bar 306 includes a number of buttons  
3 corresponding to the functionality of the Web browser 300 such as a help button  
4 306. The address bar 408 provides a region to edit and display a text  
5 representation of a particular Web-site address such as a URL address.

6 In this example, a user has selected a “Disks and Volumes” Web page,  
7 which is part of a server appliance’s remote, or Web-based UI 200 of Fig. 2. This  
8 is illustrated by a selected menu-item 204-3, label 210, and links 212, each of  
9 which is rendered in the browser’s rendering area.

#### 10 **Exemplary System to Provide Context-Sensitive Help for a Web-Based UI**

11  
12 Fig. 4 is a block diagram that shows an exemplary portion of system  
13 memory 134 of a server appliance 130 of Fig. 1. Program Data 164 includes  
14 data 416 comprising the server appliance’s Web-based UI. Such data includes  
15 data for one or more Web pages such as Web Page 200 of Fig. 2. The program  
16 data also comprises one or more Web page mapping tables 416 and an optional set  
17 of help files 418.

18 A Web page mapping table 418, maps unique IDs to respective Web Pages  
19 of the remote, or Web based UI of the server appliance. The server appliance  
20 utilizes a Web page’s unique ID to identify the Web page’s corresponding context-  
21 sensitive help information. To accomplish this, a Web page’s unique ID identifies  
22 either: (a) one or more specific help files such one or more specific Hypertext  
23 Markup Language (HTML) files that contain the Web page’s particular context  
24 sensitive help topic(s); or, (b) other information that is used to identify a help data  
25 source.



1 In one implementation, a help data source includes, for example, a URL  
2 that identifies a networked device that stores help data. Because it is not necessary  
3 for help data to be hardwired into the mapping table 418, a referenced help data  
4 source can be modified, moved to a different location, and/or renamed as  
5 necessary. Moreover, because the mapping table can be used to map a source of  
6 help information to a device other than a server appliance 130, original equipment  
7 manufacturers (OEMs) and/or independent hardware vendors (IHVs) of the server  
8 appliance are not required to take up the server appliance's limited memory  
9 resources to help data.

10 In one implementation, the mapping table 418 identifies a default set of  
11 help data. If the default set of help data is not accessible, the table identifies  
12 alternative help data and/or one or more alternative help data sources.

13 The help files 420 include context sensitive help information corresponding  
14 to one or more Web pages of the server appliance's 130 Web-based UI. As  
15 discussed above, it is not necessary for the help files to be stored on the server  
16 appliance.

17 The application programs 160 include server appliance specific  
18 modules 410, embedded Web server 412, and dynamic content generator(s) 414.  
19 The appliance specific modules comprise one or more computer program  
20 applications to perform the single function or set of well-defined functions of the  
21 appliance.

22 The embedded web server 414 both communicates a Web page to one or  
23 more other computers on a network and receives requests from the one or more  
24 computers on the network. (Procedures to use an embedded Web server to  
25 communicate, or "serve" a Web page and to receive requests from other

1 computers are well-known to those skilled in the arts of computer programming  
2 and network software). Specifically, the embedded Web server communicates the  
3 server appliance's 130 data comprising a Web-based UI 416 to another computer.  
4 Requests for context-sensitive help corresponding to respective Web pages in the  
5 appliance's Web-based UI are received at one or more predetermined Universal  
6 Resource Locators (URLs).

7 The dynamic content generator program module(s) 414 comprises one or  
8 more computer programs that implement a server-side scripting interface to  
9 generate dynamic content including context-sensitive help for the server  
10 appliance's 130 Web-based UI. Such server-side scripting interfaces include, for  
11 example, Common Gateway Interface (CGI) and an Internet Server Application  
12 Program Interface (ISAPI), both of which are well known to those skilled in the  
13 art of computer programming. CGI is a broad category that includes all possible  
14 programming models that can be used to implement server-side scripting,  
15 including all computer program languages that can be used to generate computer-  
16 executable instructions.

17 To dynamically generate context-sensitive help for a particular Web page, a  
18 dynamic content generator 414 performs one or more of a combination of:  
19 (a) identifying a source of the particular Web page's corresponding help  
20 information; (b) retrieving the help information from the identified source; (c)  
21 performing any modifications to the retrieved help such that it will be compatible  
22 with one or more platforms of a computer (e.g., an operating system or a Web  
23 browser platform, a preferred language such as English or French, etc.) that sent  
24 the request for the context-sensitive help; and (d) performing any other  
25 modifications to the retrieved help based on other criteria (if any) that may effect

1 the type and/level of context sensitive help that will be presented to a user. Such  
2 other criteria may be based on the intended use of the computer, based on  
3 predetermined user preferences, etc.

4 For example, a server appliance intended for use in a residential setting may  
5 also use predetermined preferences of users (e.g., a user's age) to generate the  
6 appropriate help content for the user.

7 To modify help information to be compatible with a particular platform of a  
8 computer that is going to present the appliance's Web based UI, a set of parameter  
9 information is mapped to a URL that in turn is mapped to the persistent help  
10 object 206 of Fig. 2. Such parameter information includes, for example: (a) a  
11 hardware platform indication; (b) an operating system indication such as Microsoft  
12 WINDOWS ®, Linux, and the like; (c) a Web browser type indication such as a  
13 Microsoft Internet Explorer ®, Netscape Navigator ®, and the like; (d) software  
14 version information; or (e) a preferred language.

15 For example, if a particular Web browser does not display HTML, dynamic  
16 content generator program 414 converts the identified help information into some  
17 other preferred presentation format such as speech output. The server appliance  
18 may be coupled to various help files language sets such as English help files,  
19 Japanese help files, French help files, etc. The referenced program knows which  
20 language is being used on the computer that is presenting a server appliance's  
21 Web-based UI, and determines the correct help file to present to a user.

22 In one implementation, the dynamic content generator program modules are  
23 modules within the embedded web server 412.  
24  
25

1 **Exemplary Procedure to Provide Context-Sensitive Help for a Web-Based UI**

2 Fig. 5 is a flowchart diagram that shows an exemplary procedure 500 to  
3 provide context-sensitive help for a server appliance's Web-based UI. At  
4 block 502, a server appliance communicates a Web page of a Web-based UI to a  
5 different computer that is coupled to the server appliance over a network. At  
6 block 504, the server appliance receives a request for context-sensitive help from  
7 the different computer that corresponds to the communicated Web-based UI  
8 (block 502). Such a request is made by user selection of a help object 206 of  
9 Fig. 2. (In this implementation, the help object is mapped to a URL that identifies  
10 a network address of the server appliance).

11 At block 506, responsive to receiving the request for context-sensitive help  
12 (block 504), the server appliance determines context sensitive information  
13 corresponding to the communicated Web-based UI (block 502). At block 508, the  
14 procedure generates a Web page that includes the determined context-sensitive  
15 help information (block 506). At block 510, the server appliance communicates  
16 the context-sensitive help as another Web page to the different computer.

17 Thus, in contrast to conventional Web-based UIs, which do not provide  
18 context sensitive help to a user, procedure 500 provides context-sensitive help for  
19 a Web-based UI, regardless of which type of computer, OS, Web browser, or  
20 language is used by a computer when presenting the Web-based UI.

21 Although details of various implementations are described above, such  
22 details are intended to satisfy statutory disclosure obligations rather than to limit  
23 the scope of the following claims. Thus, the subject matter as defined by the  
24 claims is not limited to the specific features described above. Rather, the subject  
25

1 matter is claimed in any of its forms or modifications that fall within the proper  
2 scope of the appended claims, appropriately interpreted in accordance with the  
3 doctrine of equivalents.  
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